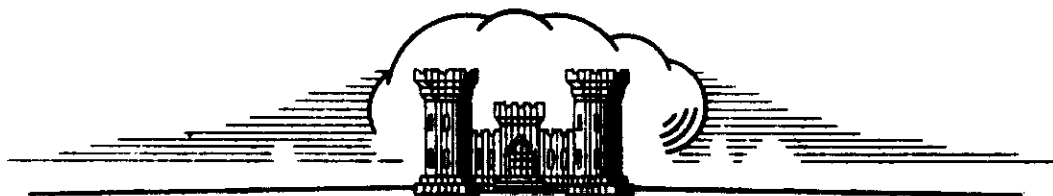


FALMOUTH HARBOR MASSACHUSETTS

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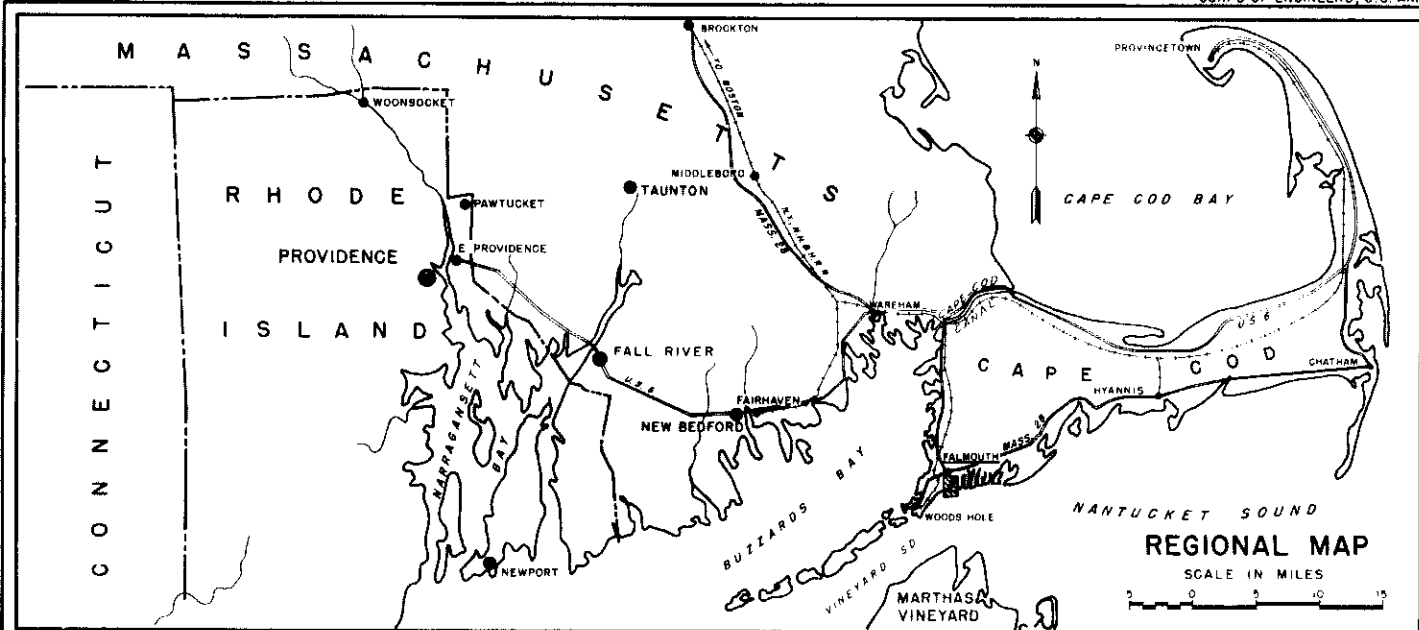
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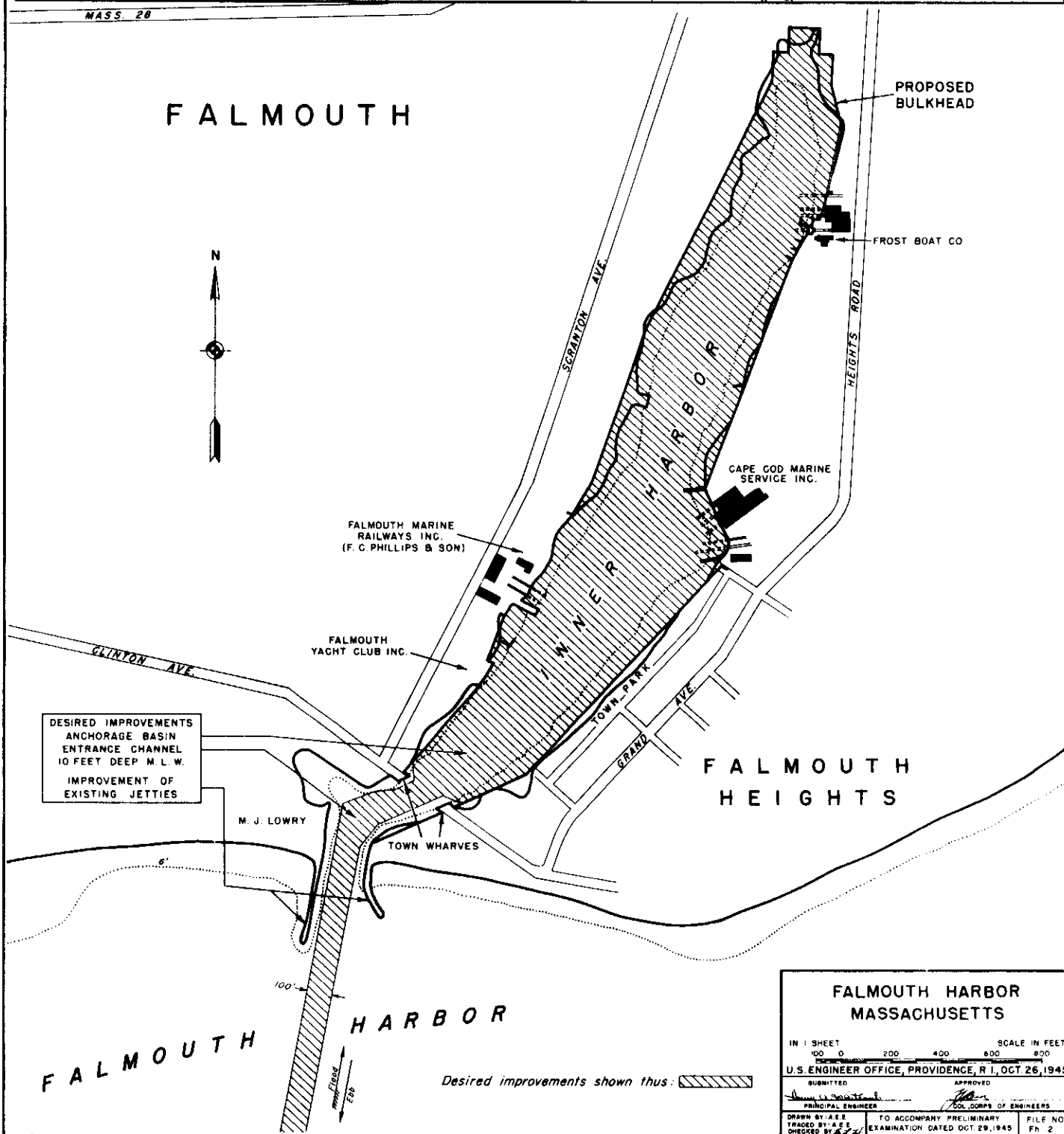
**UNITED STATES ENGINEER OFFICE
PROVIDENCE, RHODE ISLAND**

29 OCTOBER 1945



MASS. 28

FALMOUTH



SUBJECT: Preliminary Examination of Falmouth Harbor,
Massachusetts

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(29 Oct 45)

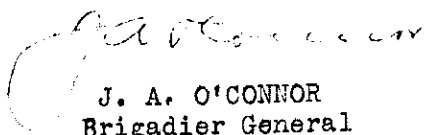
1st Ind.

CAT/phw

Division Engineer, New England Division, Boston 10, Mass., 8 November 1945

TC: The Chief of Engineers, U. S. Army, Washington 25, D. C.
ATTENTION: SPEWR

I concur in the recommendation of the District Engineer.


J. A. O'CONNOR
Brigadier General
Division Engineer

4 Incls:

- #1 - Plate 1, File No. Fh. 2
- #2 - Figure 1, File No. Fh. 1, Sheet 1
- #3 - Figure 2, File No. Fh. 1, Sheet 2
- #4 - Record of Hearing (in dupl.)
(Under sep. cover, tracings of Fh. 1,
Sheets 1 and 2, and Fh. 2)

NOT FOR PUBLIC RELEASE

WAR DEPARTMENT
UNITED STATES ENGINEER OFFICE
PROVIDENCE, R. I.

29 October 1945

Subject: Preliminary Examination of Falmouth Harbor, Massachusetts

To: The Division Engineer, New England Division, Boston, Mass.

SYLLABUS

The District Engineer finds that prospective benefits to navigation warrant further consideration of improvements of the entrance and basin at Falmouth Harbor. He recommends a survey to determine the cost and justification of a suitable project and the extent of local cooperation to be required.

AUTHORITY

1. This report on preliminary examination of Falmouth Harbor, Massachusetts is submitted in compliance with Departmental direction based on the item in Section 6 of the River and Harbor Act approved March 2, 1945 which reads as follows:

"Falmouth Harbor, Massachusetts."

DESCRIPTION

2. Falmouth Harbor is located on the south shore of Cape Cod near its western end. It lies between the headlands of Nobska Point and Falmouth Heights, just east of Woods Hole, the easternmost of several passages connecting Buzzards Bay and Vineyard Sound. The harbor is an open roadstead about 3 miles in length, the maximum width of the indentation from a line connecting the headlands being about 3/4 mile. The depths increase gradually from the shore to a maximum of about 35 feet on the line connecting the headlands, from which there are depths up to 60 feet out to a series of shoals with depths as little as 10 feet due east of Nobska Point. The harbor is exposed to winds from the southwest, through the south to the northeast. Great Harbor at Woods Hole, less than one mile west of Nobska

Point, affords much better shelter. The mean tidal range is 1.3 feet at Falmouth Heights and 1.5 feet at Nobska Point.

3. Falmouth Inner Harbor is a small tidal lagoon with its entrance just west of the Falmouth Heights headland. It has a length of about 0.7 mile and a maximum width of about 0.1 mile. The Commonwealth of Massachusetts has dredged to a depth of 10 feet at mean low water in the entrance channel and has protected the channel by two short stone jetties. The maximum depth inside the harbor is about 11 feet. No Federal project has been adopted for the improvement of Falmouth Harbor or Falmouth Inner Harbor. No bridges cross any portion of the waterways under consideration.

4. The locality is shown on U. S. Coast and Geodetic Survey Charts 249, 1209 and 1210, and on Plate 1 (File No. Fh 2) and Figures 1 and 2 (File No. Fh 1) accompanying this report.

TRIBUTARY AREA

5. The area tributary to Falmouth Harbor is a portion of the Town of Falmouth. The population of the town consists of about 6,500 year-round residents and a large additional number of summer residents and visitors. Between 1930 and 1935 the permanent population increased about 35 percent. The property valuation of the town is about \$23,000,000. Falmouth has the largest per capita property valuation on Cape Cod and the seventh largest per capita valuation in the state. The main business interests are located at the Town center about one mile northwest of Falmouth Heights and at Woods Hole, about four miles to the west.

6. The area is primarily a summer resort. The major industries are service to the summer population, boat repairing and fishing. There is some truck farming, but no manufacturing. Banking facilities are available in the village of Falmouth. The territory is served by a network of hard-surfaced roads and by the Woods Hole branch of the New York, New Haven and Hartford Railroad. Woods Hole is a stop on

the steamship line connecting New Bedford and the Islands of Marthas Vineyard and Nantucket.

PRIOR REPORTS

7. Falmouth Harbor was the subject of an unfavorable preliminary examination in 1886, which considered the advisability of providing a harbor of refuge at Falmouth. It is printed in House Document No. 58, 50th Congress, 1st Session and on page 567 of the Annual Report of the Chief of Engineers for 1887. In 1903, a Board of Engineers, in reporting on the relative merits of various locations in Vineyard and Nantucket Sound for harbors of refuge, submitted the opinion that one should be formed at Falmouth Harbor by constructing a breakwater eastward from Nobska Point at an estimated cost of \$1,132,500. This report is printed in House Document No. 60, 58th Congress, 2d Session, and on page 966 of the Annual Report of the Chief of Engineers for 1904. No action on this recommendation was taken by Congress.

LOCAL COOPERATION AND OTHER IMPROVEMENTS

8. As no Federal improvement of the harbor has been authorized, no requirement of local cooperation has been prescribed by law. The Commonwealth of Massachusetts, in cooperation with local interests, has improved Falmouth Inner Harbor by jetties and dredging at a cost of \$166,696.06 to November 30, 1940. Under the State project there has been dredged an entrance channel 10 feet deep, and a basin in the lower inner harbor 9 feet deep. The upper 1600 feet of the inner harbor was dredged to 6 feet by the State in 1927. No improvements for general navigation have been accomplished by the State since 1935 except for minor repairs to the entrance jetties. General shoaling is reported to have occurred over the entire improved area.

TERMINAL AND TRANSFER FACILITIES

9. The Town of Falmouth maintains two small public wharves in Falmouth Inner Harbor. Both are located near the entrance, at Clinton Avenue, one on the east, and the other on the west side of the

harbor. Each wharf has berthage of about 50 feet. They are used as terminals for the shipment of freight to Marthas Vineyard and Nantucket Islands, and as landings for visiting craft. Some fish is landed at these piers. No handling or transfer facilities are available. There are no other public piers, although the three boat yards permit use of their docks free of charge, subject to the owner's convenience. Several other small piers are situated in the harbor, but are used exclusively by their owners as landing places for pleasure craft. At least one public wharf is needed for the exclusive use of pleasure craft. Ample room is available for its construction and for the construction of other facilities when required.

IMPROVEMENT DESIRED

10. A public hearing, held at Falmouth, Massachusetts on May 22, 1945, was attended by about 20 people including representatives of the State, Town and local business. The Board of Selectmen presented a plan of improvement consisting of the dredging of a 100-foot entrance channel and the entire inner harbor to a depth of 10 feet below mean low water, and the repair and extension of the State jetties. Local interests propose to bulkhead the entire inner harbor and desire a depth of 10 feet up to these bulkheads. This plan was concurred in by all interested parties. There was no opposition to the improvement.

11. In justification of the proposed improvements local interests stated that an increase in the size of the harbor is necessary to accommodate the ever increasing number of local and visiting craft. The belief was expressed that the improvements would double the amount of business in the local boat yards with a consequent large increase in the Town's retail business. They cited the proximity of the harbor to the business center of Falmouth. It was stated that Falmouth possesses the only boat yards east of New Bedford capable of repairing the modern fishing boats, and that lack of adequate channels to these yards has caused a large loss of time and money to fishermen as their vessels must

make the run to New Bedford for repairs. A prospective increase in annual business, totalling at least \$500,000, was forecast by the sponsors of the project. In addition, local interests stressed the value of the harbor for refuge.

12. The Board of Selectmen offered financial cooperation toward fulfillment of the work. The sum of \$17,000 is already available, and the possibility of an additional appropriation exists. A spokesman for the Commonwealth of Massachusetts indicated that the State could be expected to contribute a portion of the cost. In addition, spoil disposal areas were offered by several private individuals.

COMMERCE

13. The commerce of Falmouth Harbor has consisted mainly of shipments of gasoline, ice, and miscellaneous building materials to the island of Marthas Vineyard. Fish is received from Nantucket Island and from the local fleet. No complete statistics are available concerning the receipt of fish. Details of commodities handled for the past three years are given in the following tabulation.

Commodities - Receipts and Shipments In Short Tons

<u>Year</u>	<u>Gasoline</u>	<u>Building Materials</u>	<u>Machinery & Autos</u>	<u>General Mds.</u>	<u>Total</u>
1942	30	61	6	183	280
1943	46	1515	-	154	1715
1944	185	223	4	1313	1725

14. The tonnages shown in the foregoing table are not entirely indicative of the normal peacetime commerce of the harbor. Normal annual commerce varies between 1000 and 2000 tons, exclusive of fish landed at the Town wharves for which no records are available. While this commerce is small compared with the commerce of Woods Hole Harbor, it is a substantial tonnage for a small harbor with minor facilities. It may be explained by the proximity of Falmouth Harbor to Vineyard Haven Harbor, and to the ease of navigation between the two harbors. It is conjectural whether or not the proposed improvements would in-

crease this commerce, or whether there would be any savings in transportation costs.

15. Local interests believe that the proposed improvements would increase the already considerable pleasure boat activities in the harbor. Three boat servicing establishments, with an annual business stated to total about \$400,000, are located in the harbor. These boat yards service local craft as well as a large number of transient craft. It is expected by the sponsors of the improvement that this business would be doubled and that retail sales would increase by about \$100,000.

VESSEL TRAFFIC

16. The trips and drafts of vessels carrying the commerce of the harbor for the years 1942 to 1944 are furnished in the following tabulation:

Trips and Drafts of Commercial Vessels

Loaded Draft (feet)	<u>Inbound or Outbound</u>		
	<u>Motor Vessels</u>		
	1942	1943	1944
6-8	7	45	70

17. In addition to the foregoing commercial traffic, the harbor is used by a large number of fishing and pleasure craft. The local pleasure craft fleet is said to number about 65 vessels, most of which are between 20 and 70 feet in length and draw up to 8 feet of water. The total value of this fleet is reported to be about \$150,000. During the summer season a large number of transient boats use the harbor. It is reported that about 160 vessels are stored in the boat yards during the winter. No record is available of the number of trips made by either pleasure or fishing craft.

DIFFICULTIES ATTENDING NAVIGATION

18. Several groundings have been reported in the entrance channel due to shoaling that has occurred since it was last dredged by the Commonwealth of Massachusetts. During the summer season the entire inner

harbor is crowded with local and visiting craft. Mooring in the fairway, which is necessitated by inadequate anchorage facilities, hinders navigation to and from the service yards. Other than the foregoing there are no unusual hazards to navigation.

WATER POWER AND OTHER SPECIAL SUBJECTS

19. There are no questions of water power or flood control so related to the proposed improvement as to be considered in connection therewith, which would tend to decrease the cost or compensate the Government for expenditures made in the interest of navigation. Prospective use of the harbor as a seaplane base would not be adversely affected by the proposed work, nor will the improvements considered have an adverse effect on wildlife or on shellfish propagation. Extension and repair of the entrance jetties will provide some relief from shoaling in the entrance channel, but will have no appreciable effect on the erosion or accretion of the adjacent shores. Some minor land reclamation would be accomplished by the deposition of dredged material on the marshland at the head of the harbor, along the beach east of the entrance and back of new bulkheads. Such deposition would make the land more usable and result in an increase in property values.

DISCUSSION

20. Vineyard Haven and Nantucket Sounds annually attract a large number of pleasure boats. Falmouth Harbor is favorably situated in respect to these ideal areas for recreational boating. Together with Hyannis and Woods Hole Harbors, it is used as a base by boat owners residing at many points in Massachusetts and nearby states. As a summer resort area, Falmouth is dependent upon its attraction to summer visitors. That its attractions are great is proved by the large population increase in recent years and by its large property valuation. Many summer residents own and operate boats in the adjacent waters. The local pleasure craft fleet numbers about 65 vessels, valued at about \$150,000. These boats are based in Falmouth Inner Harbor. During the winter about

160 boats are stored in its boat yards. Pleasure craft navigation is the most important use of Falmouth Harbor. The limited available facilities for mooring of these boats restrict the expansion of pleasure craft ownership.

21. Fishing craft using the harbor do so primarily for the purpose of obtaining repairs. Facilities in the harbor are adequate for the servicing of the majority of such craft which operate in the vicinity. Falmouth Harbor is well situated with respect to their home ports and the fishing grounds. Some of these boats must obtain repairs at more distant yards, due to insufficient depths in the harbor and its entrance channel.

22. Provision of a more adequate entrance channel and increased anchorage area, will increase the value of the harbor for both pleasure and fishing craft. It will result in an increase in the number and draft of boats in both the local and visiting fleets. Larger fishing vessels will be able to enter the harbor to obtain repairs and services. The additional boat activity will result in increased prosperity for the community. The anticipated increase in annual business attributable to the improvements is estimated by local interests to total about \$500,000. This appears optimistic. However, in addition to these local benefits, the stimulation of pleasure craft navigation will result in widespread general benefits. Combined local and general benefits sufficient to warrant a substantial improvement to the harbor may reasonably be anticipated.

23. The improvement requested by local interests, which includes bulkheading the entire inner harbor and dredging the entire area to a depth of 10 feet at mean low water will be costly. The annual charges for such an extensive improvement will exceed its annual benefits. However, it is believed that a suitable project can be planned, prospective benefits of which will justify its construction.

24. Local interests have expended substantial sums in improving

the harbor. Such expenditures should be given consideration in determining the amount of local cooperation to be required if any plan for improvement by the United States is recommended. The substantial local benefits to be expected make a considerable requirement of local cooperation equitable. Available public wharfage facilities are inadequate for the local pleasure craft fleet, and there is no privately-owned wharf available at all times for these vessels, or for the increasing number of transient craft. Additional public wharfage is essential to the derivation of maximum benefits from other harbor improvements. Its provision by local interests might be accepted as a portion of any required local cooperation.

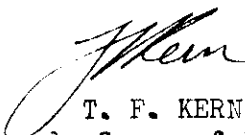
CONCLUSIONS

25. Present and prospective navigation in Falmouth Harbor and adjacent waters warrants further consideration of improvements of the entrance channel and basin with a view to participation by the United States. A suitable improvement to the entrance channel and mooring area would be accompanied by local benefits to the community and general benefits through improved refuge facilities and stimulation of the pleasure craft industry. The improvements desired by local interests are too extensive to be justified by prospective benefits but an adequate project can be planned of which benefits will exceed its annual charges. Local cooperation in amount of about 50 percent of the total cost of the project should be required. Such local cooperation toward a suitable project is practically assured. Selectmen of the Town of Falmouth have indicated that \$17,000 is already available for improvement of the harbor. It is probable that additional funds will be appropriated by the Town if required. The State will also furnish a portion of the funds in accordance with its long established policy of assisting the towns on navigation improvements.

RECOMMENDATION

26. It is recommended that a survey be made to determine the

cost and justification of providing an entrance channel, increased anchorage facilities, and repair and extension of the State jetties at Falmouth Harbor, and to determine the extent of local cooperation to be required.


T. F. KERN
Colonel, Corps of Engineers
District Engineer

3 Inclosures:

- #1 - Plate 1, File No. Fh. 2
- #2 - Figure 1, File No. Fh. 1, Sheet 1
- #3 - Figure 2, File No. Fh. 1, Sheet 2
(Under separate cover, Record of Hearing,
in triplicate, tracings of Fh. 1, Sheets
1 and 2, and Ft. 2)

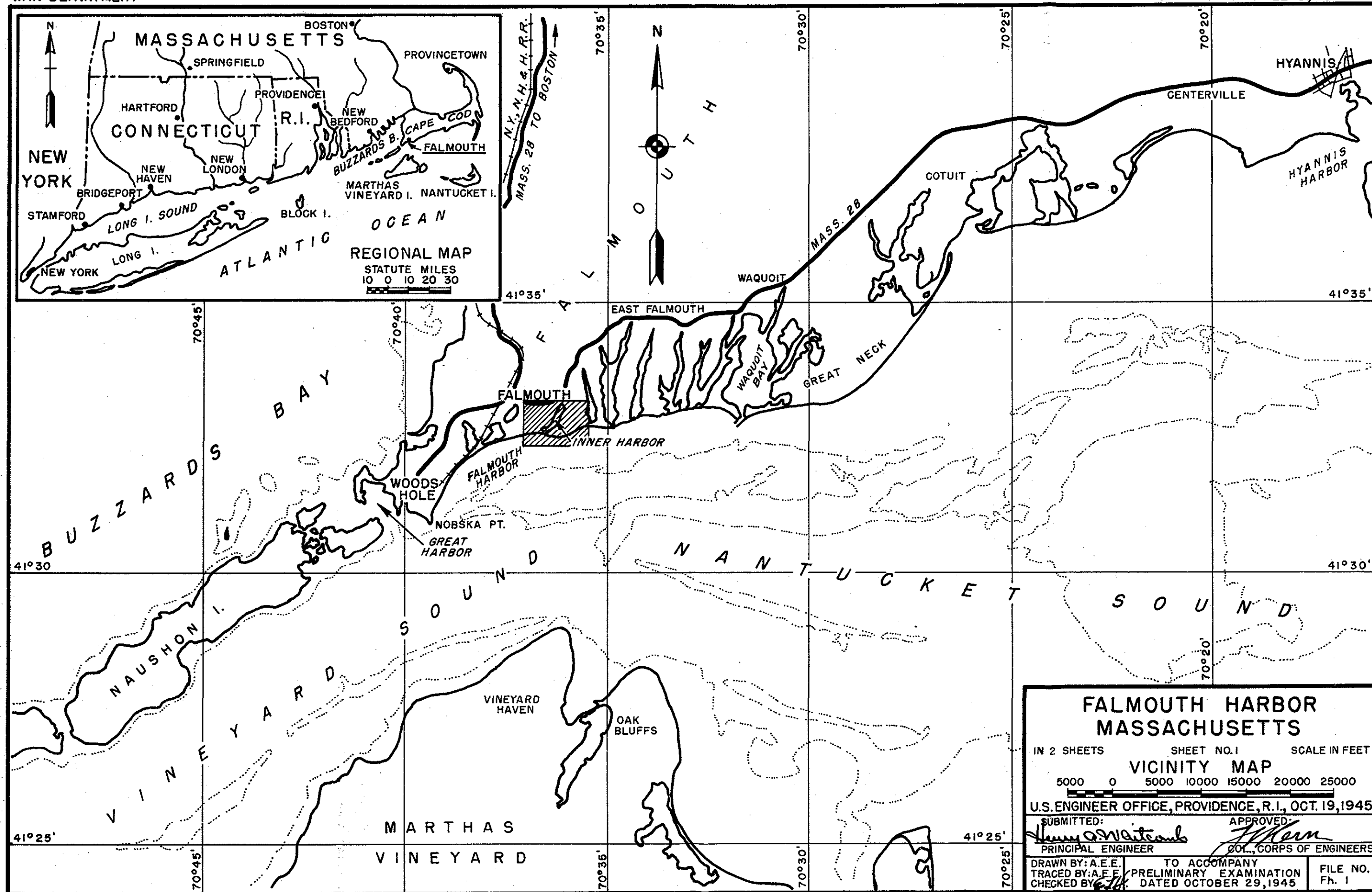


FIGURE 1

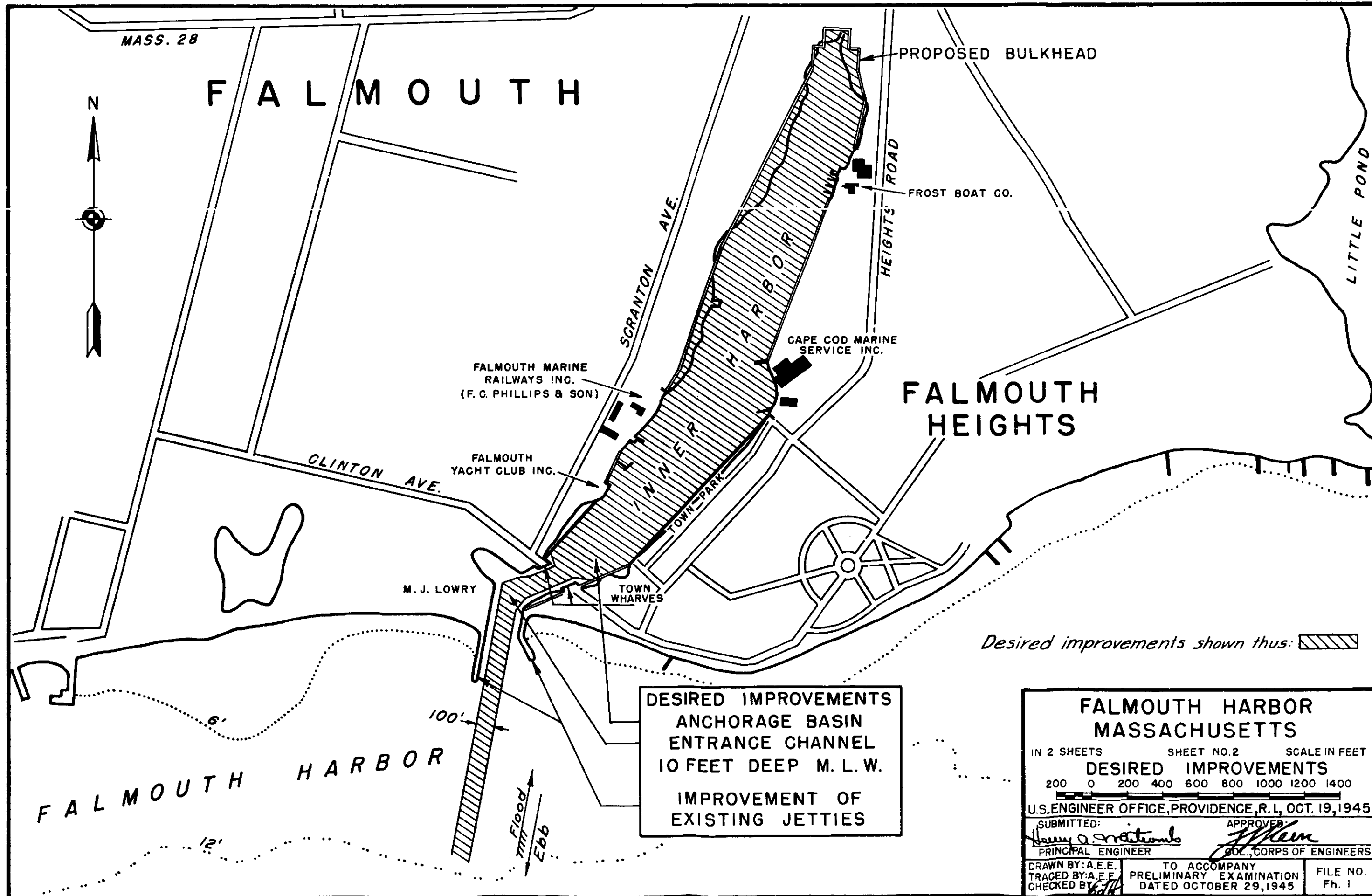


FIGURE 2